



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street  
San Francisco, Ca. 94105

July 5, 1991

TECHNICAL MEMORANDUM

SUBJECT: REVISED REMOVAL ACTION GUIDELINE FOR THE BLUEWATER URANIUM SITES.

FROM: Robert Bornstein *RB*  
On-Scene-Coordinator  
Emergency Response Section

TO: Jeff Zelikson, Director  
Hazardous Waste Management Division

It has been brought to our attention that there was an error made in the calculation of the appropriate "action" guideline stated in the Action Memorandum dated June 7, 1991. The background calculation and subtraction was not performed properly and should be corrected.

The correct calculation for the "action" guideline is below:

The National Council on Radiation Protection and Measurements (NCRP) Report 91 on the Recommendations on Limits for Exposure to Ionizing Radiation estimates the average total background radiation exposure from all sources to the U.S population is approximately 300 mrem/yr. Of this 300 mrem/yr, approximately a third is caused by natural gamma radiation. The NCRP guideline recommends that populations should be limited to excess exposures (above background) to less than 100 mrem/yr.

ERS has determined that the natural background for the area is approximately 15 uR/hr.

For areas reading 165 uR/hr, 150 uR/hr is considered excess gamma radiation.

$$165 \text{ uR/hr} - 15 \text{ uR/hr} = 150 \text{ uR/hr above background}$$

ERS has estimated that the local population spends approximately 2 hours a day in areas affected by the mining operations for 300 days out of the year. Therefore, the population is

exposed to the following amount of excess gamma radiation:

$$150 \text{ uR/hr above background} * 2 \text{ hr exposure} * 300 \text{ days/yr} \\ = 90,000 \text{ uR/yr or } 90 \text{ mR/yr}$$

90 mR/yr is approximately equal to 90 mrem/yr, since, 1 mR/yr is approximately equal to 1 mrem/yr for gamma radiation. Population exposed to areas below 165 uR/hr (150 uR/hr above background) require no emergency response action, and fall within the acceptable excess exposure limit set by the NCRP limit of 100 mrem/yr.

Therefore, as discussed in the Action Memorandum, areas of frequent public use that exceed the "action" guideline (150 uR/hr above background) will be covered with clean fill to adequately reduce the gamma emissions to the standards specified under the Uranium Mill Tailing Radiation Control Act of 1978. This corrected "action" guideline will not increase the scope or cost of the removal action which has been estimated to be \$629,770.00.

cc: ERD-HQ

OAR

ATSDR

IHS

DOI

DOE

Navajo Superfund



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Received DCE  
Grand Jct. Proj. Office

REGION IX

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San Francisco, Ca. 94105

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Mr. Robert Ivy  
United States Department of Energy  
Grand Junction Projects Office  
Post Office Box 2567  
Grand Junction, CO 81502-2567

RE: Bluewater Uranium Mine Sites, Prewitt, New Mexico

Dear Mr. Ivy:

The United States Environmental Protection Agency ("EPA") has received your proposed plan (June 21, 1991) for corrective action on Department of Energy ("DOE") land occupying the south east quarter (SE 1/4) and the south half of the north half (S1/2 N1/2) of Section 14, Township 13 North, Range 11W of the Bluewater USGS Quadrangle.

The DOE actions are consistent with EPA's Action Memorandum dated June 7, 1991. EPA concurs with the DOE that these actions will adequately mitigate the immediate health concerns at the Site as outlined by ATSDR's Health Advisory (November 1990). However, as discussed, future studies, investigations, and further reclamation may be warranted to adequately address the long term health and environmental hazards associated with the sites.

It was brought to EPA's attention that there was an error in the calculation of the action guideline of 300 uR/hr in the draft action memorandum. Enclosed for your review is the revised action guideline calculation. Therefore, the action guideline level for protore removal should be set at 165 uR/hr (150 uR/hr above background) in areas of frequent visitation. DOE should modify its plans accordingly.

EPA is expecting to commence its response actions on the

other affected sections in late July; and hopefully, we can coordinate our efforts together. If you have any questions or concerns, please contact me at 415-744-2298.

Sincerely,



Robert Bornstein  
On-Scene-Coordinator  
Emergency Response Section

Enclosure

cc: Raymond Churan, DOI/OEA (for distribution)  
Bill Weis, EPA/ERS  
Bill Nelson, ATSDR  
Linda Wandres, EPA/ORC  
Dr. Gaurav Rajen, Navajo Superfund